

Rhode Island Department of Environmental Management
Office of Water Resources

DEM Facilities Plan (FP) Review Checklist

NOTE ON USE OF THIS CHECKLIST: Items in plain type are to be answered or addressed for **all** Facility Plans or Facility Plan Updates submitted for DEM review and approval. ***Items in italic type*** are to be answered or addressed **to be eligible** for construction assistance programs administered by DEM which contain federal funds (e.g. State Revolving Fund [SRF] Program).

Yes/No/NA
& Page No.

I. Executive Summary included?

II. Project Need and Planning Area

A. Statement of project need?

B. Planning Area

1. A description of the planning area?

2. A description of political jurisdictions?

3. A description of institutional (governmental unit) structure?

4. A description of wastewater utility management structure?

5. A description of the current rate structure?

6. Description of entities conducting planning?

7. Relationship between the FP and the Community Comprehensive Plan (CCP)?

8. Is there a map which shows:

a) Service Area (current & forecasted)?

b) Political boundaries?

c) Natural resources (e.g. wetlands, coastal) consistent with CCP inventory?

d) Cultural resources consistent with CCP inventory?

e) Historical and Archeological resources consistent with CCP inventory?

III. Effluent Limitations

A. Copy of RIPDES permit?

B. Is the receiving water "water quality limited"?

C. Will state water quality standards/goals/objectives be impaired by FP?

IV. Assess Current Situation

A. Existing conditions in planning area

1. Geophysical

a) Describes soils?

b) Describes topography?

c) Describes geology?

d) Describes hydrology?

2. Surface water watersheds, wetlands, floodplains, estuarine (coastal) areas?

3. Surface water quality, quantity, uses?

4. Groundwater aquifers, recharge, and protection areas?

5. Groundwater quality, quantity, and uses?

6. Land-use and demographic data consistent with CCP?

7. Other environmental conditions

a) Air quality?

- b) Noise levels? _____
- c) Other federal/state projects which affect the environment? _____
- d) Affected plant/animal communities? _____
- e) Documentation of ISDS problem areas? _____

B. Existing System and Flows

1. Existing System

- a) Wastewater Treatment Facilities (WWTF)
 - 1) Location of all treatment plants, sludge treatment and disposal areas, pretreatment facilities? _____
 - 2) WWTF performance compared to RIPDES permit? _____
 - 3) Adequacy of plant hydraulics? _____
 - 4) Quality of operation and process control? _____
 - 5) Actual number and qualifications of operating staff versus planned/needed? _____
 - 6) Adequacy of laboratory facilities? _____
 - 7) Adequacy of sampling & testing? _____
 - 8) Adequacy of maintenance program? _____
 - 9) Adequacy of cost recovery and user charges? _____
 - 10) Impact of septage on WWTF? _____
 - 11) Effluent treatment/reuse methods? _____
 - 12) Sludge treatment/disposal/reuse methods? _____
 - 13) Flow/waste reduction measures? _____
 - 14) Services provided? _____
- b) Collection system
 - 1) Location of all pumping stations and sewers? _____
 - 2) Number of service connections? _____
 - 3) Number of service connections approved but not connected? _____
 - 4) Number of service connections requested but not approved? _____
 - 5) Number of service connections forecasted? _____
 - 6) Location and description of major industrial discharges? _____
 - 7) Location of all bypasses and overflows? _____

2. Existing flows

- a) Average and peak? _____
- b) Dry and wet weather? _____
- c) Septage (in & out of town)? _____
- d) Combined sewer overflows? _____
- e) Infiltration/inflow? _____
- f) Wastewater characteristics (BOD, TSS, etc.) _____
- g) Proportion of residential/commercial/industrial flows? _____

V. Assess Future Situation

At least the following factors must be considered when forecasting future wasteloads and flows: minimum of a twenty (20) year planning period; future land use consistent with CCP and SGP; future economic, industrial, and population projections are consistent with the State Guide Plan (SGP); sewer system extensions and septage generation; projections of flow and waste reductions possible by implementing I/I correction, pretreatment, and/or other waste reduction programs.

A. Land Use Forecasts	
1. Consistent with local CCP?	_____
2. Utilized in estimating future development?	_____
3. Utilized in estimating future wasteloads?	_____
B. Demographic forecasts consistent with SGP or State Implementation Plan?	_____
C. Economic forecasts consistent with SGP?	_____
1. Industrial projections?	_____
2. Commercial?	_____
3. Household income/financial data?	_____
D. Forecasted flows and wasteloads	
1. Residential	
a) Residential wastewater strength approximates 200 mg/l BOD ₅ and TSS?	_____
b) Domestic future flows are based on analysis of flow records and/or approximates 75 gpcd?	_____
c) Collector (lateral) sewers service area extensions consistent with CCP?	_____
2. Industrial	
a) Known future industrial flows are supported by letters of intent indicating flow volume and waste strength characteristics?	_____
b) Forecasted future industrial flows are consistent with the CCP?	_____
3. Commercial	
a) Known future commercial flows are supported by letters of intent indicating flow volume and waste strength characteristics?	_____
b) Forecasted future commercial flows are consistent with forecasts in the CCP?	_____
4. Septage	
a) Septage forecasts are based on sewer/unsewered forecasts in CCP?	_____
b) Septage forecasts consider domestic, industrial, commercial sources?	_____
c) Out-of-town septage considered in forecasts?	_____
5. Solids Treatment and Disposal	
a) Forecasts solids and composition for WWTF treatment from sewer flows?	_____
b) Forecasts solids and composition for WWTF treatment from septage?	_____
c) Forecasts residual solids and composition from sludge treatment & dewatering?	_____
d) Long-term treatment and disposal method is consistent with DEM sludge disposal regulations?	_____
6. Waste Reduction Programs	
a) Infiltration/Inflow (I/I)	
1) Does an I/I study exist for the sewer service area?	_____
2) Is the I/I study approved by DEM?	_____
3) Does excessive I/I exist by DEM criteria? (i.e 120 gpcd of I/I during periods of high groundwater and during a storm event I/I flow does not exceed 275 gpcd or cause WWTF operational problems)	_____
4) Is a Sewer System Evaluation Survey (SSES) necessary (i.e. infiltration significantly greater than 120 gpcd)?	_____
5) Does an SSES exist for the sewer service area?	_____
6) Is the SSES approved by DEM?	_____

7. Is a sewer rehabilitation program proposed which includes a cost-effectiveness analysis of reduction versus treatment costs, the scope of work, cost estimates, and a schedule for completion which is reasonable and represents realistic expectations for excessive I/I reductions which can be included as part of a sewer rehabilitation contract's performance standards? _____
- a) Pretreatment _____
 - 1) Does a Pretreatment Program exist? _____
 - 2) Has the Pretreatment Program been approved by DEM? _____
 - 3) Is the Pretreatment Program currently in compliance with DEM regulations? _____

VI. Development and Evaluation of Alternatives

All reasonable alternatives generated must be based upon and consistent with the local Comprehensive Plan (which must be consistent with the State Guide Plan) and must be evaluated to include the following factors: no-action alternative; direct, indirect, beneficial, and detrimental impacts of the entire municipal wastewater treatment system on all other related environmental objectives; existing and future environmental conditions, including all other related environmental objectives, affected by the entire system; the total life-cycle costs of the alternative, including net annualized cost; land-use and other socioeconomic parameters affected by the entire system; cumulative impacts evaluated within the context of complete municipal treatment system as well as other public works projects and future community growth.

A. Optimum Operation of Existing Facilities

Optimizing performance of existing facilities must be considered first. The level of treatment attainable with optimum performance should serve as a baseline for planning additions or modifications to the treatment system. This alternative was previously called the "no-build" alternative. The Facilities Plan should consider the following items:

1. The optimum performance level possible with the existing process design. _____
2. The age and reliability of existing equipment and its remaining useful life. _____
3. The qualifications, number and training of current operating personnel. _____
4. Additional operating modifications/improvements and laboratory facilities needed to monitor and/or improve operations. _____
5. Possible process or operational modifications (e.g. conversion of conventional activated sludge to contact stabilization, the addition of mechanical aeration or lagoons, off-peak solids processing for energy savings, etc.). _____
6. The impact of implementing a Pretreatment Program for industrial dischargers. _____
7. The impact of reducing I/I or of other flow and waste reduction programs. _____

B. Regional Solutions

Regionalizing facilities and services must be considered, and is particularly appropriate for long-term septage and residual solids treatment and disposal. An analysis of regional solutions should address the following special considerations: effects of interceptor location on land use, particularly where land is undeveloped; effects of alternative combinations on surface waters in the region; possible limitation on future expansion due to unavailability of land; differences in reliability, operation, and maintenance of facilities.

1. The regionalization alternative is consistent with the recommendations of the applicable water quality management (WQM) plan and the SGP? _____
2. The applicant recognizes the need to execute intermunicipal service agreements before proceeding with FP implementation? _____
3. Considers cost savings realized through economies of scale/more efficient operation? _____

C. Unsewered Areas*

1. Description of the unsewered area:
 - a) Identification of the approximate number, type, and location of ISDS systems; _____
 - b) Map of the unsewered area; _____
 - c) Identification of the approximate number of and impacts of failed/failing systems; on surface and ground water; _____
 - d) An analysis of the cause(s) in ISDS failure area(s). _____

2. Assess the continued use of ISDS systems within the unsewered area(s). If continued use is found to be unsuitable, are alternatives evaluated? _____
3. Description of a method to ensure regular ISDS maintenance including, but not limited to: an information and education initiative with a method for tracking maintenance activities; an information and education initiative with inspection and maintenance incentives (e.g. pump-out subsidies); a requirement for regular inspection and maintenance. _____
4. Description of a community assistance program for ISDS repair/replacement. At a minimum this should include:
 - a) the nature and extent of the assistance to be provided to the community (i.e. financial, technical, etc.); _____
 - b) application procedure and any community imposed eligibility requirements; _____
 - c) method to advertise the assistance; _____
 - d) designation of a party responsible for the assistance program. _____
5. Financial analysis:
 - a) estimated cost of repairing/replacing failed ISDS in the area; _____
 - b) estimated cost for installing, operating, and maintaining collection and treatment system; _____
 - c) estimated cost(s) for ISDS management program as described in items #2 and 3 above. _____

* If after a public meeting, the recommendation of this section is to implement an ISDS management program solely featuring the repair/replacement of individual systems on individual lots, then the community may elect to end the facilities planning process at this point and request a Categorical Exclusion for the unsewered area(s). The information developed to this point shall be used to justify the Categorical Exclusion request. A group or community ISDS unit cannot qualify for a Categorical Exclusion.

D. Sewer Extensions

Where sewer extensions are proposed, the plan should insure that:

1. The need for sewers is justified and documented, including justification for abandoning ISDS's rather than implementing a WWMD. _____
2. Consideration is given to conveyance of treated wastewater by small diameter gravity, pressure, or vacuum sewers. _____
3. Alternative methods of collection and disposal have been evaluated and compared to conventional sewers with regard to total costs *and environmental impacts*. _____
4. The sewers will not encourage or induce development in identified environmentally sensitive areas (e.g. wetlands). _____
5. The sewers are aligned and designed so construction will minimize impacts to identified environmentally sensitive areas. _____
6. Preliminary designs and the resulting cost estimates reflect state design guidelines. _____

E. Sludge Treatment and Disposal

1. Do proposed sludge treatment and disposal methods comply with regulatory requirements of applicable state and federal laws (e.g. R.I. Clean Air Act, R.I. Groundwater Protection Act, Resource Conservation and Recovery Act)? _____
2. Has the applicant given appropriate consideration to sludge treatment and disposal *by evaluating several alternatives*? _____
3. Is the sludge treatment and disposal method(s) selected/*evaluated* appropriate to the size and location of the project? _____
4. *Has serious consideration been given to sludge treatment and disposal alternatives which recycle or reclaim sludge such as methane recovery, self-sustaining incineration, composting, and land application?* _____

F. Septage treatment and disposal

1. Does the FP consider a WWMD as the mechanism for regulating septage? _____

2. Has the applicant given appropriate consideration to current and future septage treatment and disposal *by evaluating several alternatives?* _____
3. Do the alternatives evaluated include regionalized treatment and disposal at an existing WWTF based on the goals and objectives in the SGP *and the recommendations in the Areawide Waste Treatment Management Plan ("208" Plan)?* _____

G. Combined Sewer Overflows (CSO's)

The plan for control of pollution from CSO's must be considered if application of Best Available Technology (BAT) for wet-weather flows would not meet water quality standards. Where measures are to be considered for CSO's, the Facilities Plan is to evaluate the following for a 20 year planning period.

1. Alternative control techniques and management practices that could attain various levels of pollution control. _____
2. Cost of achieving various levels of pollution control by each of the control techniques that appear to be most feasible and cost effective. _____
3. Benefits to receiving waters of a range of pollution control alternatives during wet weather conditions. Consult WQM plan as appropriate. _____
4. Costs and benefits from addition of advanced wastewater treatment (AWT) processes for dry weather flows in the area as an alternative to CSO control. _____
5. A final alternative selected for control of CSO's must meet the following criteria:
 - a. The recommendations for CSO's are consistent with the R.I. CSO Policy. _____
 - b. Provision has been made for secondary treatment of all dry weather flows in the planning area. _____

H. Conventional Wastewater Management

An analysis of conventional treatment technologies should insure that:

1. The treatment process evaluated is capable of meeting RIPDES effluent limits. _____
2. Communities with small populations (usually 10,000 or less) have considered low cost treatment technologies such as facultative ponds, trickling filters, oxidation ditches, and overland flow. _____
3. The conventional treatment process is appropriate to the character and quantity of the wastewater and the size and location of the community. _____

I. Alternative Technologies

Applicants must evaluate alternative treatment technologies. The following should be addressed:

1. *The proposed process is proven and within the CWA definition.* _____
2. *Expected treatment results are within normal ranges for the process selected.* _____
3. *Loading rates and other design criteria are based on State design standards, and are within the normal ranges recommended in EPA guidance for the process.* _____
4. *Land application is a specific alternative technology which must be addressed. Should suitable land be identified, the following factors must be addressed for land application alternatives:*
 - a. *Site Selection - The plan should identify suitable sites and describe reasons for rejecting other sites.* _____
 - b. *Loading Rates and Land Area - Design values which are significantly different from EPA's process design manual should be justified by adequate supporting data.* _____
 - c. *Estimated Costs - Preliminary costs for land treatment should be comparable with those referenced in the EPA process design manual. Significant differences in land treatment costs should be well documented.* _____
 - d. *Preapplication Treatment - The need for pre-application treatment greater than that recommended in EPA's process design manual should be well documented.* _____
 - e. *Environmental Effects - Are the benefits of land treatment, including resource conservation and higher levels of treatment acknowledged and discussed?* _____

J. Innovative Technologies

The applicant must evaluate innovative technologies and consider the following items:

1. *The processes must be developed but not fully proven and within the CWA definition.* _____
2. *The Facilities Plan must assess the risks, and must establish that the level of risk is acceptable in light of the corresponding benefits.* _____
3. *Where the risk of a promising technology is relatively high, field testing of the technology must be used to further evaluate the proposed project.* _____

K. Environmental

1. Does the Facility Plan forecast the future environment in the planning area without the proposed project(s) in the Facility Plan? (i.e. "no build" alternative). _____
2. Direct Impacts
 - a. Will there be disruption of traffic, business or other daily activities during construction? _____
 - b. Will there be damage to historical, archaeological, cultural or recreational areas during construction or permanently? _____
 - c. Will there be disturbance of sensitive ecosystems such as wetlands and habitats of endangered or threatened species during construction or permanently? _____
 - d. Will there be pollution of surface waters due to erosion in the project(s) area(s) during or after construction? _____
 - e. Will there be impacts on water quality from effluent discharge(s) during construction or operation? _____
 - f. Will there be displacements of households, businesses, or services occurring? If so, how many? _____
 - g. Will there be discharge of pollutants, noise or visual impacts? _____
 - h. Will there be increased: air or noise pollution; solid waste production; or demand for potable water from induced changes in population and land use? _____
3. Indirect Impacts:
 - a. Does the plan adequately discuss indirect impacts? _____
 - b. Does the environmental analysis give special attention to indirect impacts to determine whether they will violate Federal, State, or local laws? _____
 - c. Has induced growth been considered? _____
4. General aspects
 - a. Does the plan adequately consider cumulative impacts? _____
 - b. Are mitigation measures specified for direct and indirect detrimental impacts? _____
 - c. *Is the information sufficient to be considered an Environmental Assessment?* _____
 - d. *Do(es) the project(s) qualify for Categorical Exclusion?* _____
 - e. *Will a FONSI be required?* _____
 - f. *Will an EIS and ROD be required?* _____
5. Summary of Environmental Considerations
 - a. Does the plan include a summary of the existing system and environmental needs? _____
 - b. Does the plan include a summary of the future environment without the project? _____
 - c. Does the plan contain a summary of the alternatives generation, evaluation, and selection process which led to the preferred alternative? _____

L. Segmented (Staged) Construction

1. Is adding plant capacity or extending sewers in stages during the planning period more cost effective/affordable than full construction initially? _____

2. Has the relative cost of providing full capacity initially been compared with the present worth of deferred costs for providing capacity when needed? _____

M. Is this a multiple purpose project? (i.e. meets RIPDES permit requirements, but also may serve agricultural, recreational, industrial water supply, or energy production purposes) _____

N. Financial

1. For segmented construction, develops a schedule and an affordable financing plan for the construction of all contracts, to provide adequate capacity for wastewater treatment needs during the twenty year planning period. _____

2. Are the proposed construction and costs consistent with the implementation and capital improvement budget elements of the CCP for the next five years? _____

3. A cost analysis assigns reasonable useful lives to major components and considers their salvage value at the end of the planning period *for each alternative evaluated*. _____

4. Has a rate structure analysis been performed and defined the least expensive cost recovery/rate increases needed to build the contracts proposed in the FP? _____

5. Monetary evaluation includes:

a. Sunk costs; _____

b. Present worth (twenty year analysis); _____

c. Useful life of major components; _____

d. Escalation for land and energy; _____

e. Interest during construction; _____

f. Costs per: capita, household, and user; _____

g. Net annualized costs for each alternative evaluated; _____

6. *Is there a User Charge System analysis based on annual OM&R cost recovery requirements?* _____

7. *Capital Finance Plan (CFP)*

a. *Has a CFP been prepared which takes into account the cost relationship between the proposed contract(s) and future town debt capacity?* _____

b. *Does the CFP project costs for waste treatment and disposal services within the planning area for a period of at least 10 years?* _____

c. *Does the CFP project the nature, extent, and timing of future expansion and reconstruction of treatment works which will be necessary to satisfy the future requirements for waste treatment services?* _____

d. *Does the CFP identify the way intended to finance future expansion and reconstruction for a period of at least ten years?* _____

VII. Plan Selection

A. Selected Plan (major features) and reasons for selection

1. Is there a narrative summary of why the proposed plan was selected? _____

2. Is there a narrative summary demonstrating that the proposed plan is not only cost-effective but also environmentally sound? _____

3. Does the plan contain a summary of how the selected alternative will address and comply with federal, state, and local environmental laws and regulations? _____

B. *Evaluation and ranking of proposals*

1. *Were engineering considerations (e.g. reliability, energy use, process complexity) used to evaluate and select the plan?* _____

2. *Were monetary considerations (e.g. capital costs, annual O & M costs, cost per*

user/household/capita) used to evaluate and select the plan?

3. *Were waste reduction, recycling, and reclamation considered in evaluating and selecting the plan?*
4. *Were legal, institutional, and financial constraints considered in evaluating and selecting the plan?*

C. Environmental Impacts of Selected Alternative

1. *Are unavoidable detrimental impacts identified?*
2. *Are mitigation measures for unavoidable detrimental impacts identified?*
3. *Are irretrievable and irreversible commitments of resources identified?*
4. *Is the relationship between short-term uses of the environment and the maintenance and enhancement of long-term environmental productivity addressed?*
5. *Does the plan address mitigation measures for all significant detrimental impacts?*

VIII. Plan Implementation

A. Institutional Responsibilities

1. Does each jurisdiction affected by the selected plan find it acceptable, particularly financially?
2. Are DRAFT intermunicipal agreements to implement the plan included?
3. Does the FP identify each party, its jurisdiction, and responsibilities necessary to implement the plan?
4. Does the FP demonstrate that each agency has the ability and authority under state law to finance, design, construct, have or require access to, operate, and maintain the portions of the project within its jurisdiction necessary to implement the project?
5. Are there DRAFT copies of resolutions of FP acceptance for all parties involved in implementation of the plan?
6. If there is opposition to the plan, is there a description of steps necessary to reach agreement on implementing the plan?
7. Are referenda or voter approval items needed for implementation identified?

B. Implementation Steps (including segmented construction)

1. Is the implementation/construction schedule necessary to implement the FP consistent with enforceable requirements of the RIPDES discharge permit?
2. Is the implementation/construction schedule consistent with the CCP?

C. Operation & Maintenance

1. Staffing Plan

- a. Is a staffing plan for both the collection and treatment systems included?
 - b. Is the staffing plan based on the cumulative time requirements for monitoring, testing, and collection and treatment system process units O & M?
 - c. Does the staffing plan show the assumed basis for productive man-hours per employee per year (i.e. X hours per year less allowed holidays, vacation, & sick leave multiplied by a productivity factor)?
 - d. Are the shift staffing levels based on energy (e.g. off-peak dewatering), maintenance (e.g. downtime during low flow), or other process considerations rather than a standard work week?
2. Is a DRAFT Plan of Operation included?

IX. Preliminary design and cost estimates

- A. Does the plan include basic design criteria which meet state guidelines?
- B. Will each segmented contract result in a fully operational component of the plan?

- C. Are segments consistent with the five-year implementation element of the CCP? _____
- D. Are detailed cost estimates included along with an ENR cost index number? _____

X. *Public Participation*

- A. *Was a public participation program implemented which adequately informed the public of the project alternatives and provided a mechanism for comment?* _____
- B. *Was a public meeting/workshop held to solicit further public comment at the point where several reasonable alternatives were identified for detailed study?* _____
- C. *If an EIS was necessary, was there a public notice of a scoping meeting?* _____
- D. *Was there a public hearing held to present the DRAFT FP and EA/EIS?* _____
- E. *Were substantive public comments on alternative selection received?* _____
- F. *Are copies of all agency and substantive public comments included?* _____
- G. *Are there responses to all substantive comments?* _____
- H. *Were the views of the public considered in selecting the preferred alternative?* _____

FOR DEM USE ONLY

Based on staff review of the contents of the Facilities Plan documents, it is my opinion that all requirements for issuing an approval for this Facilities Plan have been met.

SIGNED: _____, P.E., Supervising Sanitary Engineer

DATE: _____, 200_

Also, based on staff review of the environmental documents associated with the Facilities Plan, it is my opinion that the environmental information and analyses provided have met the statutory intent of the Clean Water Act environmental review requirements and are sufficient to issue a Categorical Exclusion/Finding of No Significant Impact/Record of Decision on the projects identified in the approved Facilities Plan.

SIGNED: _____, P.E., Supervising Sanitary Engineer

DATE: _____, 200_